

Appl. No. 09/701,791
Amdt. Dated 9/13/2004
Response to Office action dated 06/16/2004

REMARKS

Claims 1-3 and 7-16 are pending. No new matter has been added.

Disclaimers Relating to Claim Interpretation and Prosecution History Estoppel

Any reference herein to "the invention" is intended to refer to the specific claim or claims being addressed herein. The claims of this Application are intended to stand on their own and are not to be read in light of the prosecution history of any related or unrelated patent or patent application. Furthermore, no arguments in any prosecution history relate to any claim in this Application, except for arguments specifically directed to the claim.

Claim Rejections - 35 USC § 103

The Examiner rejected claim 1 under 35 USC § 103(a) as obvious from the admitted prior art and Nakamura ("Recent Cements"; Concrete Products, Industry and Products No. 53, p. 42–53). This rejection is respectfully traversed.

The present application claims a "high temperature high pressure *underwater* curing" of a concrete molding product, which differs from a "high temperature high pressure *steam* curing (autoclave curing)" as illustrated in Nakamura.

In high temperature high pressure *steam* curing, *steam* is always present in the periphery of cement particles constructing concrete. Moreover, the curing body is subject to hydration in an airtight pressure resistant vessel. Autoclave curing is a technique for achieving a required strength of concrete utilizing a reaction between gaseous water molecules and cement minerals or aggregate minerals. It is assumed that a bond is formed between an aggregate and a cement hydrate. In the assumed reaction, a solid reaction is performed because a new substance is formed at a solid-gas interface through the reaction.

High temperature high pressure underwater curing has an advantage that, in an airtight

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pressure resistant vessel, concrete is cured wherein liquid water is always present at the periphery of cement particles constructing concrete. The liquid water is at a pressure higher than the saturated vapor pressure for the curing temperature. More specifically, a reaction mechanism is a "solution step", in which cement component is once solved in water and then cement hydrate is developed in a supersaturated condition.

High temperature high pressure steam curing is a technique which facilitates hydration by a hydrothermal reaction of cement, and quickly makes a concrete so as to have high-strength. In both curing methods the presence of water molecules near cement is essential. The most significant difference between the steam curing and the underwater curing is the probability that voids, inevitably formed by chemical shrinkage, are occupied by unhydrated cement are filled with water. With autoclave curing employing steam no structure can be developed in the voids. Autoclave curing results in large continuing voids. On the other hand, the high temperature high pressure underwater curing facilitates a continuous reaction in which pressurized liquid water continuously fills voids being formed through hydrate contraction. In this case, voids having water therein have uniform probability of being filled with hydrate. Thus, structure development is expected to be done more uniformly and average void size can be extremely reduced.

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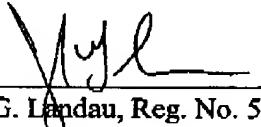
Conclusion

In view of all of the above, it is respectfully submitted that the present application is now in condition for allowance. Reconsideration and reexamination are respectfully requested and allowance at an early date is solicited.

The Examiner is invited to call the undersigned attorney to answer any questions or to discuss steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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